CITY OF LONG BEACH

Dune Management Report

City of Long Beach
PO Box 310
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March 2000

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Chapter 1

Introduction

Shorelines are among the State of Washington's most valuable and fragile natural resources. These areas provide important functions and are valued not only for aesthetic reasons, but also for their unique recreational opportunities and wildlife habitat.

As Washington's population continues to grow and tourism economies expand, these important shoreline areas face increasing pressure for use and development. Consequently, there is escalating concern over how shoreline areas should be utilized and protected. The issue of shoreline management is complicated because much of Washington's shorelines and adjacent uplands are in private ownership. This makes it difficult to decide how to regulate shorelines in order to protect the public interest, while at the same time, recognizing and protecting private property rights consistent with the public interest.

This issue is of special significance for the City of Long Beach (City). The oceanfront shoreline along the City's western border is part of a coastal dune system that provides a number of important ecological functions as well as being an integral part of the local economy. This area is designated by the Washington State's Shoreline Management Act (SMA) as a "shoreline of state-wide significance."

Long Beach has been experiencing increases in residential growth, as well as an expanding tourism economy. Today, the City is faced with trying to balance the demand for future growth within the city as required by Washington's Growth Management Act (GMA), while still protecting the coastal dune resources as required by Washington's Shoreline Management Act. This can only be accomplished through a coordinated planning effort by the federal, state, and local agencies with jurisdictions affecting shoreland use.

Report Purpose and Background

When H.H. Tinker came to the Long Beach Peninsula, he arrived to a geographic feature we now know as a bay mouth bar. This long and narrow sandy spit extends north approximately 28 miles from the Columbia River and is formed and dominated by parallel sand dune ridges that are separated by low swales. The Peninsula forms the western edge of Willapa Bay. The sand is from the Columbia Basin and most likely became deposited and developed as the feature we call the Long Beach Peninsula as a consequence of the warming of the earth during the retreat of the last ice age. As the polar caps melted and the ocean rose 200 or more feet, new bars and beaches were formed into their present location. The age of the bay mouth bar is most likely measured in a few thousand years (Curt Peterson, Personal Communication).

H.H. Tinker founded the present day City of Long Beach in 1882. His vision of a beach resort town accessible by the Portland, Oregon market via Columbia River ship traffic proved successful. In 1900 the Long Beach/Seaview vicinity was the most popular beach destination on the Washington coast. Until the late 1970's the Long Beach Peninsula relied upon the seemingly endless abundance of Columbia River salmon and ocean beach razor clams as the primary tourism attraction. However, by the mid 1980's both the salmon and razor clam populations were greatly diminished. The traditional tourism economy began to wane.

During the same time that Long Beach was growing so was a local phenomena, called accretion. Between the time of statehood in 1889, to the present date 1999, the shoreline in the City of Long Beach has grown approximately 2,000 feet west. Tinker's town, like any other beach town, was built on the shoreline. Today, downtown Long Beach is separated from the shoreline by an expansive dune system. Unlike the blowing sand dunes of Tinker's days, these dunes were held fast due to the introduction of European Dune grass on the Clatsop Plains in the 1930's. The combination of increased land mass of accreted lands, the presence of stabilized dunes, low swales, a high annual precipitation (80") and a resultant high groundwater level have created seasonal wetlands. (Insert 1 –2 historic photos here)

When it became bleakly apparent to community leaders that the historic salmon and razor clam populations would likely never return, they pinned their hopes on repositioning the Long Beach Peninsula in the growing northwest tourism market. They correctly noted

that tourism was growing on the neighboring Oregon coast in places such as Cannon Beach, Seaside, Lincoln City, and Newport without an abundance of salmon or clams.

Today Long Beach's community leaders envision a peninsula that retains open space, wild coastlines, untouched wildlife habitat, and simultaneously providing great restaurants, amusements, resort quality accommodations, and various beach events. They have come to understand that the issue is not whether to develop or preserve, it is both. The question is where to develop and where to preserve. They have also come to understand that trendy tourism gimmicks such as casinos and aquariums with movie star whales are to be avoided. Such developments are temporal in nature, can easily be duplicated in other areas, including inland locations, and thus do not provide Long Beach with a long-term competitive advantage.

Long Beach can secure economic stability through good design, comfortable accommodations, quality restaurants, and interesting shops. Elements of good design include coastal architecture, native plant landscaping and a village atmosphere. The City will assure the village atmosphere by reviewing design proposals and providing pedestrian friendly circulation (sidewalks, trails, and bicycle lanes).

When these elements are combined with the environment and history of the Long Beach Peninsula, which are the most powerful and under-utilized tourism attractants, a unique and modern synergy arises. Long Beach hopes, through cooperation and shared vision with Pacific County, that rural and natural areas will be preserved. That eco-tourism and low intensity recreational uses will be made a priority. These uses include: bird watching shelters; water trails through the peninsula, Willapa Bay and the Columbia River; Peninsula wide trail systems; and interpretive facilities (signs, kiosks, and literature). This can be linked to an expanding awareness of the peninsula's rich history of early explorers such as Bruno Hezeta, John Meares, Robert Gray, James Swan and Lewis & Clark.

This report is designed to provide a framework that will help guide future shoreline policies and regulations affecting the city of Long Beach.

This vision is real, achievable and desirable. To attain it will require the cooperation of the City of Long Beach, Pacific County and a host of state and federal agencies. This report is designed to provide a framework that will help achieve the above stated vision by guiding future shoreline policies and regulations affecting the city of Long Beach. The ultimate goal is to provide the City with some consistency and predictability for future development, while providing ecologically meaningful management of the coastal dune resources.

This report is a result of numerous public processes that have used community visioning to successfully create and implement comprehensive land-use planning, utility infrastructure planning, zoning, shoreline master program, and design review guidelines. This report assists development in environmentally sensitive areas as well as giving predictability to community development in general.

Development of this report has been a cooperative effort involving the following agencies and individuals:

- U.S. Army Corps of Engineers - T.J. Stetz, Bob Martin, Thomas Mueller
- Washington Department of Ecology - Bill Leonard, Dan Sokol
- City of Long Beach - Nabiel Shawa, Dave Glasson
- U.S. Environmental Protection Agency - Richard Clark
- U.S. Fish & Wildlife Service - Dennis Carlson, Tim Romanski
- Washington Department of Fish and Wildlife - Steve Kalinowski, Dave Hays
- Dick Reiners

This group met over the course of one year and: participated in field visits, shared observations, inventoried environments, reviewed results and made final recommendations. The committee members represent extensive experience in the study area. Many are field biologists who have spent considerable time observing dune systems, and their experience and observations contribute significantly to this report.

Other individuals and agencies have also assisted with this effort, including representatives for Pacific County and Washington State Parks and Recreation Commission.

Development of this report was guided by the following key principles:

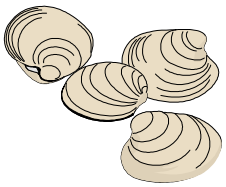
- Because the Washington State Shoreline Management Act (SMA) identifies the shorelines of the Long Beach area as "shorelines of state-wide significance," recommendations should be based, in part, on the

The report must balance the Growth Management Act's requirements for urban density development within cities, while providing for the shoreline protection required under the Shoreline Management Act.

spirit of this legislation (see **Washington Shoreline Management Act** below).

- Any effort to protect the public interest associated with shorelines, must at the same time, recognize and protect private property rights consistent with the public interest.

- The report must balance the Washington State Growth Management Act (GMA) requirements for urban density development within cities, while providing for the shoreline protection required under the SMA



Study Area

The study area includes 465 acres of land comprising the oceanfront of the city of Long Beach (Figure 1). It is bounded by city limits on the north, Ocean Beach Boulevard on the east, city limits on the south, and the 1980 Seashore Conservation Line on the west.

Long Beach's historic tourism-based economy continues today. The City is characterized by predominately single-family houses with a commercial district oriented towards tourism.

There are four SMA environmental designations (from the Shoreline Master Program, see below) within the study area—Residential, Resort, Urban and Conservancy (Figure 2). The *Residential* environmental zone provides for residential development; *Resort* and *Urban* (which are combined in this report due to very similar allowed uses) environment provides for tourism-oriented commercial activities; and *Conservancy* provides for open space and public access.

Within the City of Long Beach, the Conservancy environment comprises nearly 50% of the land within the study area (Table 1). All city beaches are open to the public because of the Seashore Conservation Act (SCA).

The Conservancy zone comprises the most land within the study area (Table 1). All city beaches are open to the public because of the Seashore Conservation Act (SCA).

Table 1. Land Use Designations within the Study Area

Shoreline Environmental Designation	Acres	Percentage
Residential	144 Acres	31.0 %
Resort	95 Acres	20.4 %

Washington Shoreline Management Act

It is the policy of the state to provide for the management of the shorelines of the state by planning for and fostering all reasonable and appropriate uses. This policy is designed to insure the development of these shorelines in a manner which, while allowing for limited reduction of rights of the public in the navigable waters, will promote and enhance the public interest.

This policy contemplates protecting against adverse effects to the public health, the land and its vegetation and wildlife, and the waters of the state and their aquatic life, while protecting generally public rights of navigation and corollary rights incidental thereto.

The interest of all of the people shall be paramount in the management of shorelines of state-wide significance. For shorelines of state-wide significance, land uses shall be given preference in the following order:

1. Recognize and protect the state-wide interest over local interest.
2. Preserve the natural character of the shoreline.
3. Result in long term over short term benefit.
4. Protect the resources and ecology of the shoreline.
5. Increase public access to publicly owned areas of the shoreline.
6. Increase recreational opportunities for the public in the shoreline.

Conservancy	226 Acres	48.6 %

Predicted Development Impacts

Shoreline designation	Total # of Acres	Allowed lot size	Maximum # of lots	% Cover	Covered Acres	Un-covered Acres	Wetland Acres	Buffer acres
S1 (single family) + S2 Multi-family	144	10,000 ft^2	626	60	86.4	57.6	18.7	18
Shoreline Resort	95	10,000 ft^2	413	75	71.25	81.35	16	17
Shoreline Conservancy	226	NA	NA	NA	NA	226	34.4	NA
Totals	465		1039		157.65	364.95	68.8	35

Given the allowed types of development within the study area, from single & multi-family residential to resort/hotel, the actual maximum build-out impacts of the study area is predicted as follows:

Using the current trend of increasing numbers of multi-family and condominiums, and current development regulations, at maximum build-out, approximately 1039 lots with built structures (buildings, driveways, parking, etc) covering 158 acres could be developed within the study area, (an additional 20 acres of roads would be constructed for a total of 178 acres of built land).

The area of land taken out of development by current on-site buffering regulations within the development area would equal 35 acres of developable land and leave a total of 143 acres of developable land.

The final density within the 143-acre built areas is approximately 4 lots per acre, which at a minimum represents 4 housing units per acre and more likely 8+ housing units per acre if current trends continue. This easily achieves GMA urban development goals of 5 units per acre.

The remaining 365 acres would make up all other non-built surfaces, including open spaces, lawns, landscaped areas, un-built areas (total of 139 acres) and conservation land (226 acres).

Overall Density within the entire study area

The final density in the entire study area would be approximately 2 lots or 2-4 housing units per acre. Assuming no on-site mitigation and no preservation of wetlands, for every acre of built land, over 1.6 acres of un-built land would remain within the study area.

If all the wetlands in the developable areas were impacted (34.7 acres) and if mitigation were required on site to create new wetlands at an average of 4:1, this would attempt to create 138.8 acres of new wetlands (to replace them within the 158-acre area for development. This would leave 20 acres of developable land and reduce densities within the entire study area to rural densities (87 lots on 20 acres of developed land within a total of 465 acres).

Applicability to Other Environments

This report addresses a shoreline resource and situation that is unique to the city of Long Beach. Therefore, conclusions and recommendations contained in this report are intended solely for use within the Long Beach study area, and are not meant to apply to the entire Long Beach Peninsula or any other shoreline areas of the state.

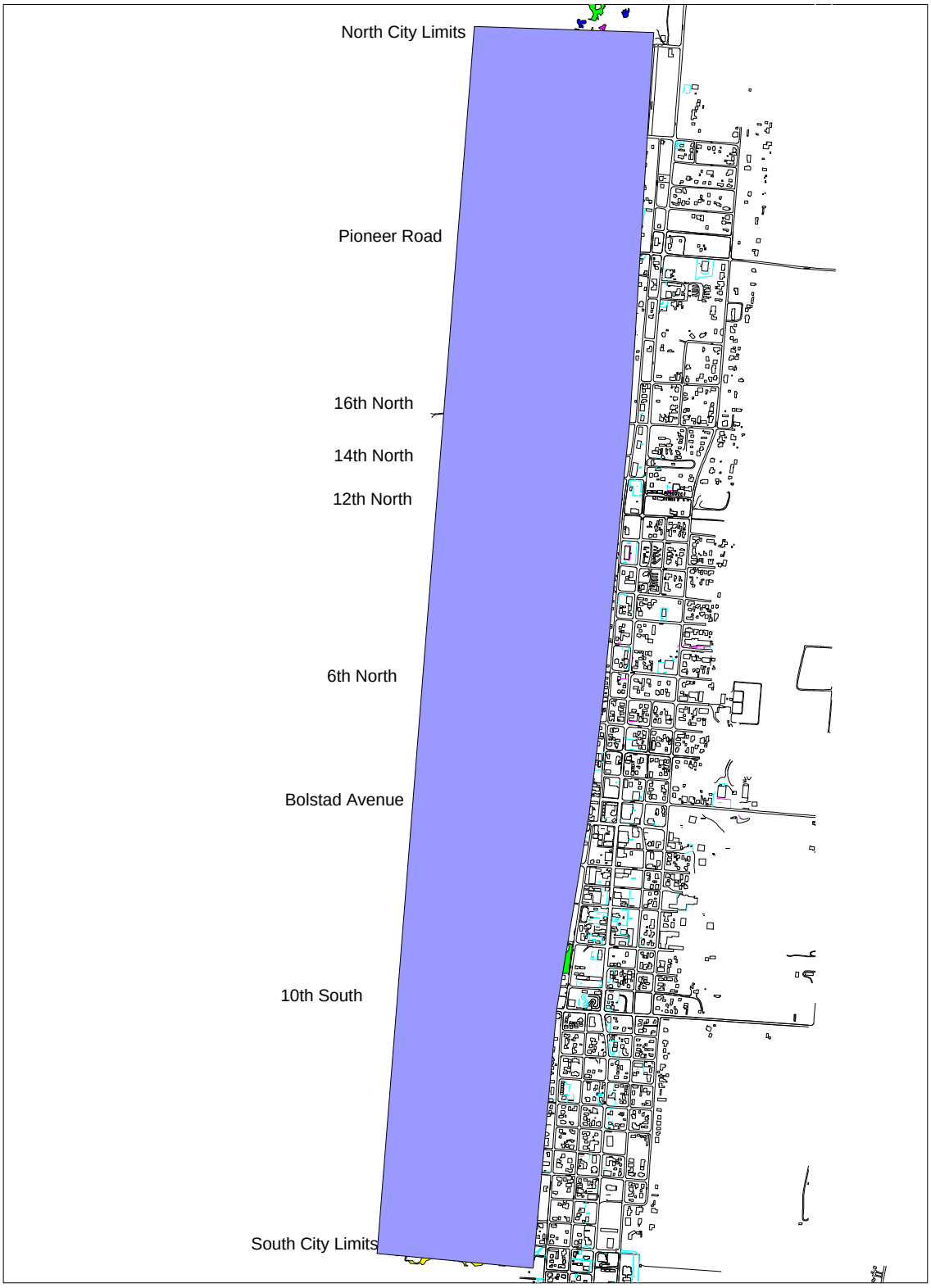


Figure 1. Project Study Area

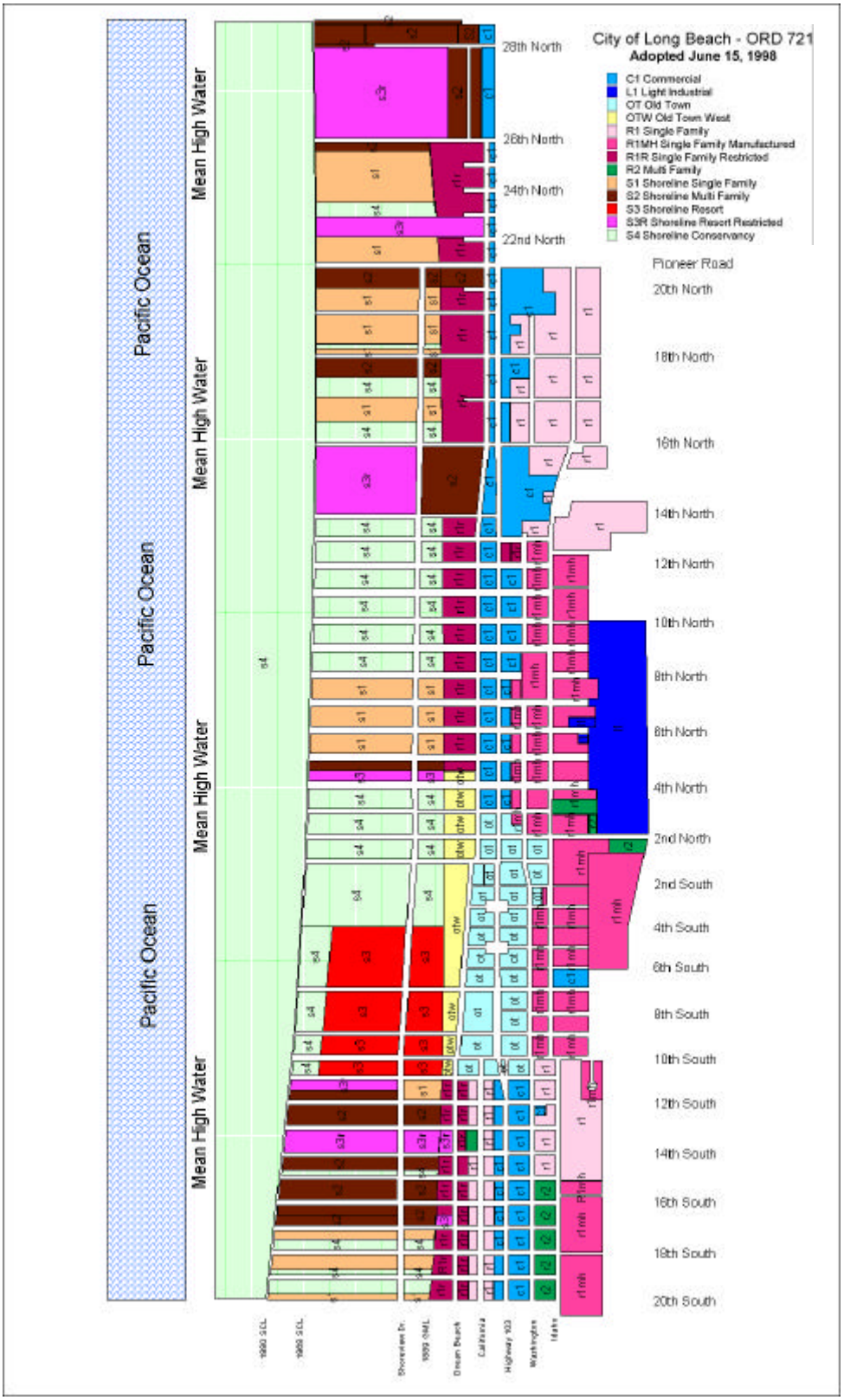


Figure 2. Land Use Designations within the Study Area

Chapter 2

Project Setting

Dune systems are a rare environment in Washington, and the system addressed in this report has characteristics atypical of most dune systems. These characteristics include:

- Significant localized accretion (increase of land by natural and human forces)
- Wetlands of varying degrees of maturity
- A mix of private and public ownership
- Small resort town setting
- Recreational and tourism-related uses that are a significant part of the local economy

These characteristics create a setting unlike any other on the Washington coast.

Dune System Characteristics

The morphology of the Long Beach dune system is described as a parallel ridge system (Wiedemann 1984). This dune system development (and the resultant dune forms) is normally influenced by wind, water, vegetation, and availability of sand. However, because this dune system is located within an urban setting, human activities have significantly altered the dune system's natural development. The most prevalent activities include sand mining, vehicular traffic, pedestrian traffic, grading and removal of vegetation, and urban development. Together, these activities have helped create a dune system where the parallel ridges (old fore dunes) are reduced by erosion to hummocks and blowouts. This study did not analyze the influence of various forces such as the Columbia River, the

transport mechanisms on the

Today, the Long Beach dune

identifiable dune forms:

Well defined beach

Fore dune

- Hummocks
- Deflation plain

The portions of the dune system within the study area include the fore dune, hummock zone, and deflation plain. The city is built on the old dune system, which is a portion of the deflation plain and back dune. Elevations within the study area range from 10 - 26 feet MSL.

This dune area within the city of Long Beach has increased substantially in recent years as a result of natural and human-induced forces (i.e., accretion). The 1990 Washington State Parks and Recreation Commission Seashore Conservation Line Survey indicates that 575 feet of additional beach has accreted at the south city limits from 1968 and 1990. For that 22-year period, the accretion rate was 26.13 feet per year. The accretion rate may have been increasing over the years. Surveys made between 1968 and 1980 show approximately 260 feet of beach has accreted (an accretion rate of 21.67 feet per year). Between 1980 and 1990, an additional 315 feet had been added (a rate of 31.5 feet per year).

Incidents of short-term beach erosion were observed in the study area. The March 1, 1999 "Full Moon" storm left a pronounced scarp from South 10th Street to Beard's Hollow. Some erosion has been observed further north at Leadbetter Point. The suspected causes appear to be a combination of El Nino, extended high sea levels, jetties impacting near-shore littoral drift, very strong storms and a decline in the sediment supply from the Columbia River. [Note: accretion and erosion patterns in this area are currently being evaluated by an interagency group, and therefore, are not analyzed in this report.]

Vegetation

Approximately 85 percent (394 acres) of the dunal system is dry uplands and the remaining 15 percent (71 acres) is wetlands (see **Interdunal Wetlands** below). The dominate upland vegetation is European Beachgrass *(Ammophila arenaria).* Other typical upland species include Spiked Woodrush (*Luzula spicata),* Coastal Strawberry (*Fragaria chiloensis),* Sweet Vernalgrass (*Anthoxanthum odoratum),* Two-color Lupine *(Lupinus bicolor),* and Shore Pine *(Pinus contorta).*

Typical wetland plant species found in this area include Slough Sedge (*Carex obnupta*), Tapered Rush *(Juncus acuminatus*), Sickle-leaved Rush (*Juncus falcatus*), and Birdsfoot-Trefoil (*Lotus corniculatus*). Within the scrub/shrub wetlands, you may also find Shore Pine (*Pinus contorta*), Red Alder (*Alnus rubra*), Hooker's Willow (*Salix hookerana*), and Wax Myrtle (*Myrica californica*).

Interdunal Wetlands

There are 70.9 acres of wetlands within the study area. Over half of the wetland acreage (36.5 acres) is already protected by existing Conservancy designation.

A wetland inventory was conducted by the City to collect basic information regarding the size, location, and type of wetlands. Detailed inventory results are presented in appendix A. The inventory identified 187 wetlands totaling 70.9 acres (Table 2). The majority of wetlands are small, each less than 0.25 acre in size. There are only two wetlands larger than 5 acres.

Table 2. Wetland Distribution, by Size

Wetland Size	Number	%	Acres	%
< 0.10 Acre	98	52.4%	4.6	6.5%
0.10 to 0.249 Acre	43	23.0%	7.3	10.3%
0.25 to 0.499 Acre	17	9.1%	5.7	8.0%
0.50 to 0.999 Acre	14	7.5%	9.8	13.9%
1.0 to 4.999 Acres	13	7.0%	29.0	40.9%
>4.999 Acres	2	1.0%	14.5	20.4%
Totals	187	100.0%	70.9	100.0%

These wetlands are primarily located within sandy, depressional areas (swales) at elevations at or below 14 feet MSL. Most wetlands have seasonal standing water, caused by the high groundwater table at that elevation and high rainfall on the coast.

The soils within the Study Area are classified as Westport Fine Sand (USDA National Resource Conservation Service Pacific County Soils).

Although wetlands are found throughout, they tend to be most concentrated in the eastern and southern portions of the study area (Figures 3 and 4). Over half of the wetland acreage (36.5 acres) is located within the Conservancy zone (Figure 5). Approximately 18.7 acres are located within the Residential zone and 15.7 acres are in the Resort zone.

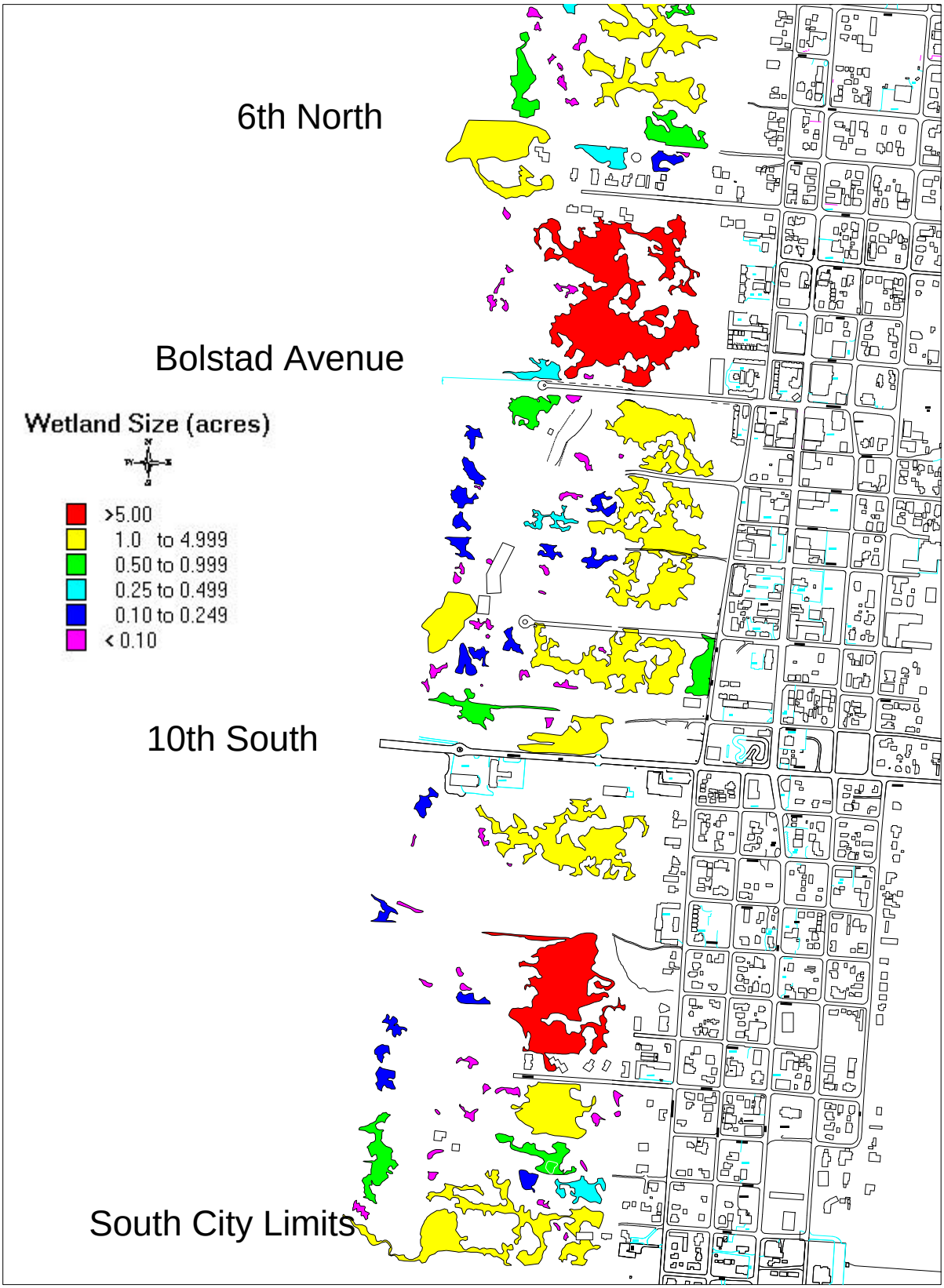


Figure 3. Wetland Inventory - South 20th Street to North 7th Street

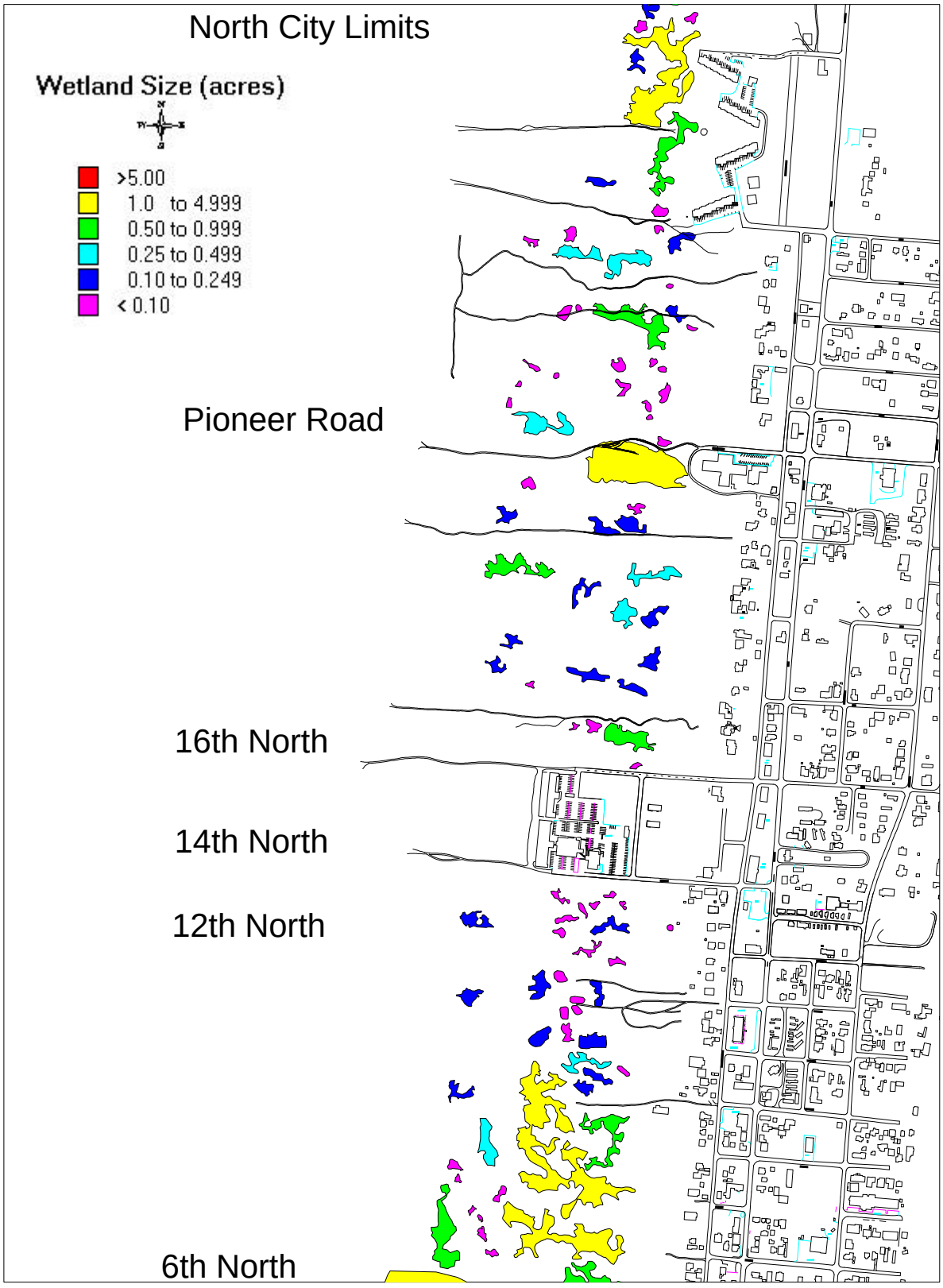
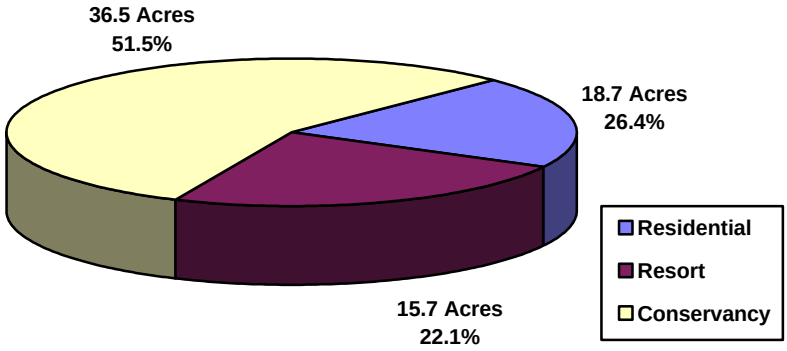


Figure 4. Wetland Inventory - North 5th Street to North 28th Street

Figure 5
Wetland Distribution, by Environmental Designation



All wetlands are classified as freshwater, palustrine systems according the U.S. Fish and Wildlife Service Wetland Classification System (Cowardin et al. 1979). For the purposes of this report, wetlands were further subdivided into the following wetland classes:

- *Emergent* - Wetlands dominated by herbaceous vegetation (i.e., grass or grass-like plants)
- *Emergent/Scrub* - This subset of emergent wetlands is dominated by herbaceous vegetation with small patches of woody plants present
- *Scrub* - Wetlands dominated by woody vegetation

Based on this classification, over half of the total wetland area is classified as scrub wetland (Table 3).

Table 3. Wetland Distribution, by Type

Wetland Type	Number	%	Acres	%
Emergent	120	64.2%	22.4	31.5%
Emergent-Scrub	15	8.0%	7.8	11.1%
Scrub	52	27.8%	40.7	57.4%
Totals	187	100.0%	70.9	100.0%

Dune System Functions and Values

Dunes systems can provide a number of important functions, such as aesthetics, wildlife habitat, groundwater recharge, water quality protection, storm water retention, storm buffer, and recreation. An important part of developing any management strategy is determining those functions the dune system is providing and their importance. Areas can then be prioritized or managed based on the functions considered most important in that area.

Dune system functions and values within the study area are described below. These descriptions are not based on any formal or comprehensive functional assessments. Rather, they are based on the committee members' extensive knowledge of the study area and published literature. Functions of the dune system are a consequence of the interactions of the entire complex of habitats in the system and not just one component thereof.

When many functions are examined together across the entire dune complex, we may observe functional relationships. One function may support others and their interdependence becomes the "dune system."

Dune Aesthetics

"We call it the great outdoors, and in many other ways do we Americans declare our affection for the world beyond the hearth. The love of open-air activity is rooted in our frontier history, reflected in our heroes, celebrated in our arts. If you would understand me," exclaimed Walt Whitman, "go to the heights or watershores." (Americans and the Outdoors by the President's Commission on Americans Outdoors, January 1987).

It seems Walt Whitman knew about the Long Beach Peninsula. The aesthetic attraction is the 'watershores' and open space. Driving, walking, riding from the bustling downtown area across the dunegrass-wetland complex, over the dune to the expansive beach and Pacific Ocean is what it's all about. The senses become captivated by the waving grasses, a savannah sparrow flitting by, the breeze cooling the ears, the rumble of waves collapsing on the beach, sun glistening off the ponded wetlands, the kak-kak-kak of the gulls, a splash of color from a kite. Standing on the beach and watching the harvest moon rise over Willapa Bay excites the mind. A walk to the Pacific Ocean beach can provoke a sense of space, relaxation, or adventure. Maintaining open space as an aesthetic resource for residents and visitors is important to any future management strategy.

Wildlife Habitat

Coastal dune systems provide a mix of habitat types including unstabilized sand, grasslands, wetlands, and scrub-shrub communities in a unique association with the open ocean and forested uplands. Although sand dunes themselves are considered unique in the Northwest because of their limited distribution, the wildlife habitat they provide is not necessarily unique.

Wiedemann (1984) listed 168 species of birds, 31 species of mammals, 10 amphibian species, and 3 reptile species occurring in association with the Pacific Northwest coastal dune ecosystem. These Include species found in coastal forests, sand dunes, interdunal wetlands, salt marsh, beach, intertidal, and open ocean habitats. The list of species utilizing only sand dune habitats is significantly less. Dunes also provide protection for many migratory seabirds and shorebirds from severe storms as they pass along the coast. There have been instances when hundreds, perhaps thousands of birds have either sought shelter or been forced onto the beach and into the dunes by winter storms (Gabrielson and Jewett 1940).

Within the study area, several dozen wildlife species likely utilize one or more of the different habitat types. Some of the more common animals found on in this area include: Pacific Tree Frog, Black-tailed Deer, Deer Mouse, Douglas Squirrel, Bushy-tailed Wood Rat, Ring-necked Pheasant, Northern Harrier, Killdeer, Swallows, as well as many species of waterfowl and songbirds (e.g. American Robin and Chestnut-backed Chickadee). Habitat availability is required for resident and seasonal species. Loss of habitat area causes population reduction.

Although many wildlife species utilize coastal dune habitats, few species are generally restricted to these areas. Two examples are the Snowy Plover (*Charadrius alexandrinus*) and Oregon Silverspot Butterfly (*Speyeria zerene hippolyta*). Both are state-listed as *endangered* species by the Washington Department of Fish and Wildlife, and are federally listed as *threatened* species by the U.S. Fish and Wildlife Service (WDFW 1996). Neither of these species, however, is known to occur within the study area. The Oregon Silverspot Butterfly is dependent upon an upland dune meadow habitat which no longer occurs within this area (David Hays [WDFW] pers. comm.). The nearest occupied habitat for the Snowy Plover is at Leadbetter Point at the north end of the Long Beach Peninsula. The Washington Department of Fish and Wildlife's recovery plan for the Snowy Plover and current plans for the Oregon Silverspot Butterfly do not specify lands within the study area.

The fore dune and beach environments provide the most significant wildlife habitats within the larger coastal dune ecosystem.

The fore dune and beach environments provides the most significant wildlife habitats within the larger coastal dune ecosystem. Many species of wildlife are found in the greatest abundance in these habitats, and this area likely provides the most significant corridor for north-south movement along the western side of the peninsula.

The chain of freshwater wetlands east of Long Beach, and running through the interior part of the peninsula, also provide important wildlife habitat. These interior wetlands include a complex and interconnected series of open lakes, sphagnum bogs, mature

forested wetlands, and expansive sedge meadows. These systems provide some of the most significant wildlife habitat found on the Long Beach Peninsula.

Groundwater Flow and Water Quality

Long Beach Peninsula Aquifer: The groundwater system of the Long Beach Peninsula is predominately a sand aquifer with some local silt or clay lenses that may act as a confining bed. Because of the unconstricted movement of groundwater throughout the Long Beach Peninsula, the aquifer has been designated as an unconfined aquifer.

Groundwater Recharge: The sand dune habitat and associated depressional wetlands along the western edge of the peninsula have the functional characteristics that allow for rapid and efficient groundwater recharge (e.g., porous sand substrate, the absence of confining soil layers, minimum construction of non-pervious surfaces). Typical actions that cause a reduction in groundwater recharge are an increase in impervious surfaces (parking lots, roads), filling of wetlands and uplands that are acting as recharging systems, or an increase in groundwater withdrawals (wells).

Saltwater Intrusion: Saltwater intrusion is the movement of saltwater through the soil into a freshwater aquifer. Saltwater contamination of a freshwater aquifer can occur when there is a reduction in fresh water input to the underground aquifer. Because the Long Beach Peninsula is bordered by the Pacific Ocean on the west and Willapa Bay on the east, saltwater intrusion will always be a concern as increased development occurs. One natural protection against saltwater intrusion on the Long Beach Peninsula is the high annual rainfall, approximately 80 inches per year. This rainfall helps maintain a thick freshwater lens of groundwater that prevents seawater movement into the aquifer. The surface runoff in the dunal area from this rainfall is small due to the rapid percolation associated with the sandy soil. It is estimated that approximately 72 percent of the rainfall percolates into sandy soil recharging the freshwater aquifer (U.S. Geological Survey Report 95-4026).

Water Quality: The undeveloped coastal dune area west of the city is part of a groundwater recharge system that provides clean water to the aquifer and helps prevent saltwater intrusion. The quality of this water can be adversely affected however by contaminants encountered at the surface (e.g., paved parking lots) or within the aquifer (e.g, septic drain fields). The City has taken steps to reduce water quality impacts by developing a city-wide sanitary sewage system. The City has also reduced potential health risks from contaminated drinking water by developing a city-wide water supply system. Existing city drinking water is provided by surface water reservoirs located east of town in the Willapa foothills.

Storm Water Retention: Coastal sand dunes and associated wetlands provide an important storm water run-off retention function on the Long Beach Peninsula. The need for storm water flood protection is amplified during the wet winter storm period. It is during this period that groundwater levels rise throughout the Long Beach Peninsula. In many areas, groundwater rises within the dune system and inland to or

near the surface. This rising groundwater reduces the area's storm water retention capacity, thus increasing the possibility of localized flooding.

Development within the dunal system would likely cause an additional reduction in local storm water retention capacities. To mitigate the potential future flooding due to development, the City has prepared a comprehensive storm water plan that establishes on-site storm water retention areas in addition to city-wide storm drain collection system. A storm water utility has been enacted to fund the various existing and planned improvements.

Storm Buffer

The primary dune is a natural seawall protecting the interior dunes and city from storm surges, and to an unknown degree from tsunamis. Existing land-use regulations limit development to several hundred feet east of the primary dune. Elevation of the primary dune is approximately 25 feet MSL. This elevation generally exceeds the elevation of winter storm surges and far source tsunamis. The FEMA 1985 study concluded that "...100 year level flooding caused by tsunamis is lower than that caused by winter storms."

The 1990 Phipps study plotted the far-source tsunami wave run-up elevation at about 18 feet MSL for the Long Beach study area. The upland extent of coastal velocity zones are generally located at or waterward of the fore dune. The City's FEMA FIRM map indicates a velocity zone elevation of 17 - 20 feet MSL.

Recreation

The Long Beach Peninsula is blessed with a wide, 28-mile, uninterrupted, fine-sand beach. Recreational opportunities abound, ranging from secluded beach-combing walks to highly organized activities, such as the annual sand sculpture contest. Long Beach and adjoining communities take full advantage of this natural wonder to provide a wide range of family-oriented events and festivals.

Many of the beach events, such as the annual kite festival, have received regional and international acclaim. Because there is such an expansive beach, however, there is always room to get away from the crowds and seek out a unique piece of driftwood, watch the shorebirds, or enjoy a peaceful sunset. Most of these activities occur west of the primary dune on the sandy seashore.

Projected Future Growth

The need to establish predictability and suitability for future development is illustrated by the "demand" indicators listed below. Both the tourism and residential sectors of the City have experienced steady growth over the past several years.

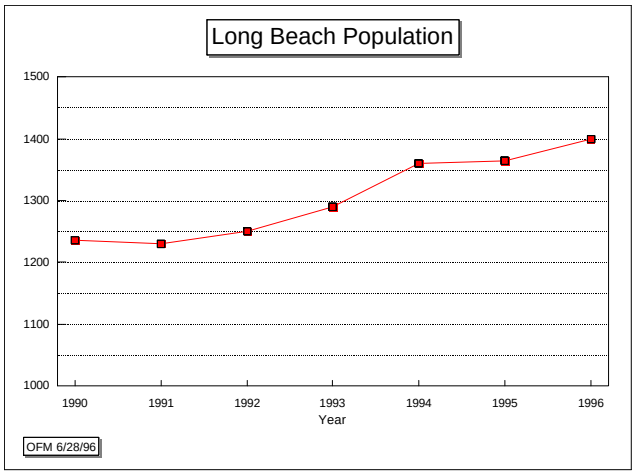


Figure 6

During the period from 1990 to 1996, the City's year-round population grew by 164 residents (Figure 6). This equates to a growth rate of 18.96 percent every ten years. Assuming this growth rate continues for the next decade, there will be an additional 265 residents in Long Beach.

The U.S. Census Bureau states there are 1.9982 persons per household in Long Beach. Assuming the household size remains the same, Long Beach will need to accommodate an additional 133 homes over the next decade.

Currently within Long Beach City limits, but outside of the Study Area, there are approximately 47 undeveloped platted residential lots. The majority of these lots are located within an 800-foot strip that parallels the East Side of SR103. Further east of this strip of developed land is an expansive marsh/wetland system that is unsuitable for development.

Changing the zoning of commercial lots that border SR103 to residential is possible but undesirable for three reasons: 1) The noise, traffic, and existing commercial activities yield a built environment that is not compatible with residential development; 2) Cities that are not bedroom communities to an industrial or commercial city must have a viable commercial sector. Conversion of viable commercially zoned property to residential ultimately results in loss of economic potential for both the private and public sectors. There is a negative impact on per capita income, public services and quality of life; and 3) the purpose of zoning is to provide a basis for orderly and balanced growth as well as predictable development densities and types. Significant rezoning of cities contributes to incompatible uses and conflicts, precedents for further rezoning, and a lack of public trust.

Redevelopment of existing residential and commercial developments is very desirable. Existing structures ripe for redevelopment are usually a neighborhood blight. The opportunity to eliminate such blight and replace it with viable

attractive development should be encouraged by public policy. Long Beach does have a number of older homes and commercial structures. The City's design review standards encourage "early seashore" architecture. As a result of formal adoption of this policy and the public's support of preservation over elimination, numerous homes and businesses have been remodeled and brought to current building standards. While this effort is very commendable, it alone cannot satisfy the housing and commercial building needs of a growing community.

The unincorporated land on the Long Beach Peninsula is under the jurisdictional control of Pacific County. In November of 1998, Pacific County adopted a Comprehensive Land Use Plan that complies with Washington State's Growth Management Act (GMA). The primary goal of GMA is to encourage development in the urban areas where adequate public facilities and services exist and to simultaneously reduce urban sprawl into rural and undeveloped lands. Pacific County's Comprehensive Land Use Plan provides for a maximum density of one residential unit per acre in unincorporated villages such as Seaview and Ocean Park. Outside these villages the density drops to one residential unit per five acre in the General Rural areas and goes as low as one residential unit per ten acres in Rural Agriculture. Further their projected 20-year demand is for 1,314 new residential units. This assumes that the current 1,294 vacant dwelling units will be occupied by full-time residents.

The Plan is errant in that it fails to recognize that any of these vacant households serve as secondary vacation homes. U.S. Census Bureau statistics support this analysis as the average household size in the north Pacific County communities of Raymond and South Bend, where there is virtually no tourism economy, is 2.5 persons per household. Yet in the south Pacific County cities of Ilwaco and Long Beach, where there is a century old tourism economy, the household size is 2 persons per household. Why is there a 25% person per household increase in north Pacific County? It seems more likely that given the historic tourism economy of the Long Beach Peninsula, the reason is a greater number of houses per capita due to secondary vacation homes. If this assumption is correct, the projected 20 year demand for 1,314 new dwelling units is grossly understated and development pressures on the incorporated cities will increase greater than currently projected.

Intense development in the unincorporated rural and natural areas of the Long Beach Peninsula should be discouraged as provided for in the Growth Management Act. Except for portions of the village of Seaview, the unincorporated areas do not have basic public water, sewer and storm water services. They lack park service and are understaffed in terms of police protection that is associated with urban areas. In comparison, the cities of Long Beach and Ilwaco provide public water, sewer, storm water, municipal parks and trails, sidewalks, street lighting, fire and police (one officer per 188 residents in Long Beach vs. one deputy per 1,275 residents in the county).

The most environmentally unique aspects of the Long Beach Peninsula and Pacific County are the Columbia River, Willapa Bay and expansive ocean beaches. Willapa Bay is regarded as the last large fairly pristine estuary in the continental United States. This very special estuary harbors wildlife sanctuaries, a federal refuge, and Washington State's most prolific oyster industry, thousands of acres of tidal wetlands and mud flats that together form a rich, complex, and rare ecosystem. Arguably the greatest threat to Willapa Bay is water quality degradation resulting from surrounding development and resource extraction industries such as logging. Ground water and storm water runoff from commercial and housing developments on the East Side of the Long Beach Peninsula pour into the Willapa Bay, as does the large wetland/marsh complex that runs throughout the center of the Long Beach Peninsula. Developments in those areas rely on unmonitored septic systems that on average discharge 150 gallons per person per day. The permanent population of the Long Beach Peninsula is approximately 7,500. The cities of Long Beach, Ilwaco and Seaview contain approximately 3,034 permanent residents. Therefore about 4,466 permanent residents reside in homes utilizing septic systems. Based on Washington State Department of Ecology standards of 150 gallons of sewage discharge per day, the Long Beach Peninsula's shallow aquifer is receiving approximately 714,560 gallons of septic effluent daily. This does not account for itinerant population discharges from the tourism industry, which can triple sewage flows in the City of Long Beach on a decent summer weekend.

Simply for this reason alone it is clearly in the public's best interests to direct dense development to the west side of the Long Beach Peninsula and into those communities that provide public sanitary sewer systems. Unfortunately Pacific County's Comprehensive Land Use Plan does not allocate a realistic percentage of anticipated future growth to incorporated municipalities.

The need for additional city housing could be even greater if GMA is successful in curbing growth in the rural areas and redirecting that growth to urban areas. Pacific County's 10-year population growth rate is approximately 22.67 percent (Figure 7).

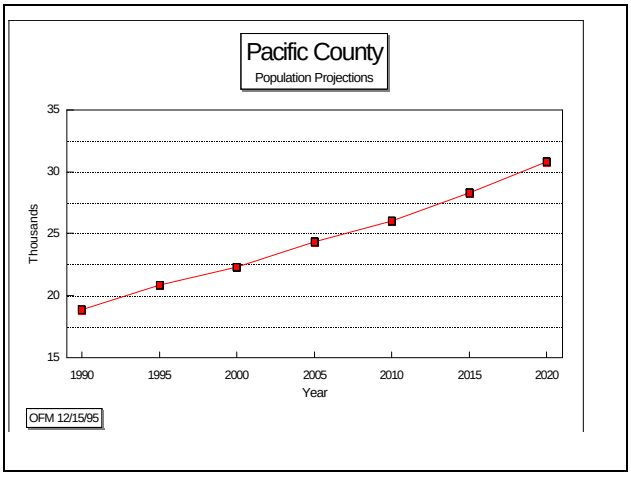


Figure 7

The steady growth and success of Long Beach's tourism industry in recent years is evidenced by the many new businesses, public improvements, festivals, as well as increases in tax revenues and

visitations. Revenues from the City's retail sales tax and lodging tax are up 164 percent from 1989 to 1995 (Figures 8 and 9). The number of phone inquiries at the visitor center is up 382 percent from 1988 to 1995 (Figure 10).

While most tourism development (e.g., shops, restaurants, and hotels) has occurred outside the study area, the only area that can reasonably accommodate future tourism-related expansion is within the study area, specifically the approximately six blocks of Resort-zoned land east of the boardwalk.

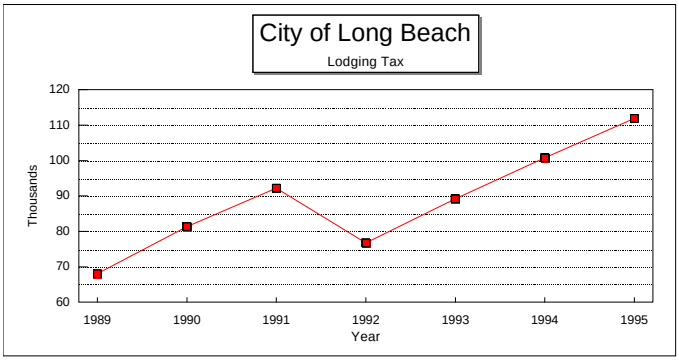


Figure 8

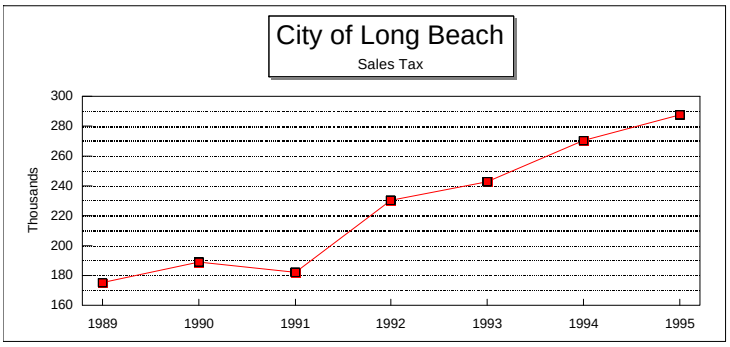


Figure 9

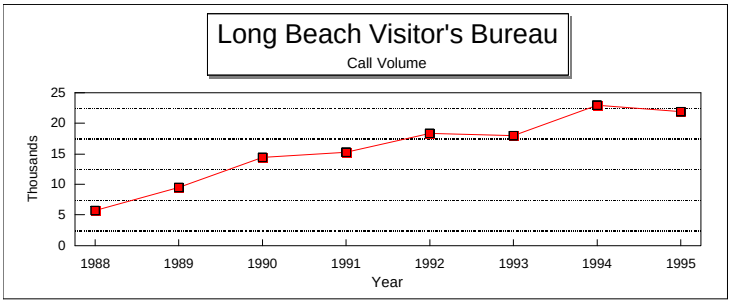


Figure 10

Chapter 3

Permitting Programs and Regulatory Requirements

This chapter outlines recommendations designed to balance the development needs of Long Beach, while still preserving the important functions of the dune ecosystem. Development of these recommendations was guided, in part, by the following important considerations:

- The value of the dune ecosystem should not be viewed in terms of the individual dune components. Rather, it is the combination of beach, dunes, and wetlands as a complex that provides the most functions and values. Preserving the integrity of this complex should be the key environmental consideration.

The value of the dune ecosystem should not be viewed in terms of the individual dune components. Rather, it is the combination of beach, dunes, and wetlands as a complex that provides the most functions and values.

- The City's population and tourism industry will continue to grow in the future. Concentrating future growth into the core area can produce economic and environmental benefits.

- The study area involves new accreted lands formed during the last 50 years. Wetlands in this area are relatively young. They have low functions and values in comparison to other, more structurally diverse wetlands in the Long Beach area. This is in a strict comparison of wetland attributes. This should not be construed to mean that the interdunal wetlands are not important or valuable.

- Existing Conservancy and Natural Environment designations already protect approximately half of the total wetland area (51.5 percent).

- Uplands in this area are as ecologically important as wetlands, from a functional point of view. It is the entire dune complex and associated environments that are important.

- The beach and fore dune environment provides the greatest functions in terms of wildlife, recreation, human health and safety.

Wetland Permits and Mitigation

This section provides a brief overview of federal, state and local regulations relating to wetlands. It is not intended to detail all requirements, but rather give some perspective regarding requirements as they relate to this plan.

Preserving the integrity of the dune complex should be the key environmental consideration.

Clean Water Act Permits

Any proposal to place fill into or excavate, grade or mechanically clear waters of the United States (e.g., ocean, streams, lakes, wetlands, mud flats) or fill or excavate the beach waterward of mean higher high water (+7.5 feet) requires a permit from the U.S. Army Corps of Engineers (Corps). Two types of permits are usually available: individual permits and nationwide permits.

If an individual permit is required, an alternative analysis (Section 404(b)(1)) of the Clean Water Act) must show that the proposal is the least environmentally damaging practicable alternative within the market area for a particular proposal. For projects requiring location in wetlands, or other special aquatic sites, an upland alternative is assumed to be available for non-water dependent activities. The applicant must conclusively demonstrate to the Corps that no other alternative is available which is practicable and less environmentally damaging. The Corps will make its own analysis for the permit decision. Proposals qualifying for a nationwide permit do not require an alternative analysis, but must comply with all national and regional conditions and avoid and minimize impacts to the greatest extent possible.

Shoreline Management Act

The Shoreline Management Act (SMA) of Washington State complies with the mandates set forth in the Federal Coastal Zone Management Act. SMA directs each city and county with shorelines of statewide significance to prepare a Shoreline Master Program (SMP). The SMP's are in effect a combined zoning and comprehensive land use plan for development activities within shoreline jurisdiction. Proposed development within shorelines jurisdiction that exceeds $2,500 and/or impacts wetlands must obtain a shoreline substantial development permit. Shoreline substantial development permits are filed with the applicable local city or county. The municipal jurisdiction can approve, deny or condition the permit. However upon completion at the local level, the permit is forwarded to the Washington State Department of Ecology (WDOE). WDOE reviews the permit for compliance and can either concur with the municipality's decision or appeal the decision to the State Shoreline Hearings Board for final resolution.

Shoreline Management Program

The *City of Long Beach Shoreline Management Master Program* is the City's principle policy plan for managing shorelines. This plan should be updated to provide guidelines for anticipated growth and further resource protection. The revised policies should encourage innovative options for resource protection, such as conservation easements

and wetlands banking, which would protect, create, and/or restore high-value wetlands throughout the Long Beach Peninsula.

Land Use Zoning

The existing land use zoning, which places approximately half of the study area in the Conservancy Environment designation, should remain intact to continue the policies of public access and resource protection.

Urban Design

Long Beach has the opportunity to preserve the village setting that has attracted visitors to this beach for the past century. Through thoughtful, cooperative planning, Long Beach can continue to protect the natural resources of the Long Beach Peninsula, expand its tourism economy, and provide a quality lifestyle for its residents. This can be achieved, in part, by following the urban design recommendations outlined below:

1. Concentrate tourism-related commercial development in and around the existing downtown core (the area between 10th Street South and Bolstad Avenue). Residential and open space areas should flank this commercial hub to the north and south.

2. Direct high-density tourism developments to the private-sector land behind the ocean beach boardwalk. Directing lodging, shopping, eating establishments to this vicinity will provide easy pedestrian access to the existing downtown core, boardwalk, beach, and numerous festivals. It also provides the most efficient use of required infrastructure.

3. Reduce the need for auto transportation by extending sidewalks, bicycle lanes and trails. This will reduce the reliance on motor vehicles, reduce environmental impacts, and provide for other forms of healthy recreation.

4. Encourage redevelopment of older existing commercial structures.

Implementing these recommendations can provide a number economic benefits. For example, one isolated gift shop does not attract the number of customers that a cluster of shops attracts. Therefore, encouraging dense, quality commercial development can result in economic synergy. Locating lodging facilities adjacent to retail and eating establishments can further stimulate economic activity. This approach also helps lessen the basic infrastructure costs (i.e., streets, water, and sewer).

Centralizing commercial activities can also provide important environmental benefits. For example, restricting urban sprawl reduces the need for more streets and other infrastructure improvements that damage the environment. It also reduces vehicle traffic and promotes pedestrian traffic.

This approach provides sociological benefits as well. By targeting residential neighborhoods to the north and south of this downtown core, residents are given easy, non-vehicular access to stores, banks, post office, etc. Residential neighborhoods are also afforded greater protection from encroachment of commercial activities.

Extending trails, bicycle paths, and sidewalks can also help create stronger neighborhoods as residents are more inclined to visit and become acquainted with one another. This leads to a greater propensity for neighbors to interact with one another and establish neighbor programs such as Block Watch or street parties.

This document evaluates a dune system within an urban area and makes management recommendations that directs high density development to specific areas near and adjacent to the commercial core and maintains the lower density "village" and "small town" atmosphere around those areas.

The tradeoff in this development strategy is that it is better to maintain a core resort/commercial and business density and sacrifice some environmentally sensitive areas (dune areas and dune wetland areas). This avoids a spread out ocean front resort and commercial development and lessens impacts to dune areas while reducing the need for city urban services (municipal water, sewer, storm water, police, fire, etc.).

The implication of this document is clear in a generic sense. The function and values of the dune system are a good fit with residential development areas while the city's commercial core can be sustained as a viable economic base if high density development supports it and is near it with some sacrifice of dune areas. It makes little sense to sap a community's future by encouraging high-density development outside the core area. The cost of providing urban services rises, the benefits to the city core areas decline, and the impacts to dune area increase. Furthermore, a sensitive area such as the dune system in this case, can better tolerate residential development without totally compromising functions and values.

This document has potential when used as an area-wide alternative analysis on the southwest Washington State coast to evaluate where high-density development is appropriate (urban areas) and where low-density development is appropriate (rural areas). It applies the principles of Growth Management Act planning in that urban services are directed to urban areas.

Chapter 4

Plan Recommendations

Natural & Conservancy Environments

The Natural and Conservancy Environments should have policies and regulations which prevent destruction or degradation of dune areas, including associated wetlands. The recommended regulations for these areas are as follows:

1. Prohibit filling or excavating wetlands, unless it is needed to maintain or improve existing roads, trails, or other structures. Any unavoidable loss of wetland or buffer areas will require compensatory mitigation (see **Wetland Mitigation Strategy** below).

2. Prohibit the grading of dunes or other modifications which alter the natural topography.

Rural Residential Environment

The Rural Residential Environment should have policies and regulations which provide for residential neighborhoods and necessary restrictions to protect the residential character. Specific recommendations for this area are listed below:

1. Protect wetland functions by requiring buffer zones around wetlands that are 500 sq. ft. in size or larger (see **Wetland Buffer Requirements** below).

2. Minimize wetland losses by following mitigation sequencing guidelines (see **Mitigation Sequencing** sidebar).

3. Require compensatory mitigation for impacts (filling or excavation) to wetlands that are 500 sq. ft. in size or larger (individually or cumulatively), once mitigation sequencing has been satisfied.

Mitigation Sequencing

If wetland alterations are proposed as part of a project, the following mitigation sequence should be pursued as outlined in Washington Administrative Code 197-11-768:

1. Avoid the impact by not taking a certain action or parts of an action;
2. Minimize impacts by limiting the degree of magnitude of the action and its implementation, by using appropriate technology, or by taking affirmative steps to avoid or reduce impacts;
3. Rectify the impact by repairing, rehabilitating or restoring the affected environment;
4. Reduce or eliminate the impact over time by preservation and maintenance operations during the life of the action;
5. Compensate for the impact by replacing or providing substitute resources or environments; and/or
6. Monitor the impact and take appropriate corrective measures.

No compensatory mitigation will be required for impacts to small wetlands less than 500 sq. ft. in size, provided the cumulative wetland impacts (e.g., filling several small wetlands as part of a single project) do not exceed 500 sq. ft. If the impact exceeds 500 sq. ft., mitigation will be required.

Impacts associated with single-family residential developments on existing platted lots (at the time of the 1997 Shoreline Master Program amendments) can be mitigated by creating new on-site wetlands at a 1.5:1 ratio (i.e., create 1.5 acres of wetland for every 1 acre of wetland lost).

Mitigation can also include preserving coastal dune habitat or preserving high quality wetlands on the Long Beach Peninsula (see **Wetland Mitigation Strategy** below).

Resort Environment

The Resort Environment (combined with the Urban Environment in this report) should have policies and regulations which provide for the continued growth of the increasingly important tourism economy, while providing for reasonable wetland mitigation and preservation. Guidelines for this area are as follows:

1. Protect wetland functions by requiring a buffer zone around wetlands 500 sq. ft. in size or larger (see **Wetland Buffer Requirements** below).

2. Minimize wetland losses by following mitigation sequencing guidelines (see **Mitigation Sequencing** above). Require compensatory mitigation for any amount of impacts (filling or excavation) to wetlands that are 500 sq. ft. in size or larger, once mitigation sequencing has been satisfied. No compensatory mitigation will be required for impacts to small wetlands less than 500 sq. ft. in size, provided the cumulative wetland impacts (e.g., filling several small wetlands as part of a single project) do not exceed 500 sq. ft. If the impact exceeds 500 sq. ft.,

mitigation will be required. Mitigation can include preserving coastal dune habitat and/or preserving high quality wetlands on the Long Beach Peninsula (see **Mitigation Strategy** below).

Wetland Buffer Requirements

The width of wetland buffers should be based on several factors, including (1) functions provided by the wetland, (2) physical characteristics of the buffer, and (3) the intensity of the proposed development.

Wetlands in the City have all formed relatively recently as dune lands have accreted along the West Side of the peninsula. These wetlands have seasonal ponding with emergent and scrub-shrub vegetation. No forested wetlands or sphagnum systems occur in the study area.

These wetlands lack perennial ponding of the older, complex plant communities on the peninsula. Consequently, the wildlife habitat they provide is less diverse in comparison to either the forested and sphagnum wetlands occurring in the center of the peninsula, or to the beach and intertidal areas along the coastline. Wetlands in the city are not known to provide habitat for any state- or federally listed threatened or endangered species, and only minimal habitat for a few state-listed priority species. It is the best professional judgement of biologists from the Washington departments of Fish and Wildlife and Ecology that the wetland buffers shown in Table 3 will be adequate to protect wildlife functions.

Table 3. Recommended Wetland Buffers

Wetland Size	Base Buffer Width
<500 sq. ft.	No buffer required
500 sq. ft. - 0.25 acre	25 feet
0.25 acre and larger	50 feet

These buffers should also protect water quality in the wetland areas if sufficient treatment is provided.

Buffer averaging may be allowed to compensate for unavoidable impacts in buffer areas. If buffer averaging is used, it should not result in a net loss of buffer area, nor should the minimum buffer width at any point be less than 25 feet.

Unavoidable buffer impacts that cannot be mitigated through buffer averaging shall be mitigated at a 1:1 ratio in a manner consistent with the regulations for mitigating wetland impacts.

Wetland Mitigation Strategy

The mitigation strategy outlined below represents a new approach to managing wetlands and associated coastal dune resources. Its primary emphasis is to preserve the integrity of the dune ecosystem, thus protecting the most valuable functions and values. As noted earlier, this report addresses a shoreline resource and situation that is unique to the city of Long Beach. Therefore, the strategies presented are intended solely for use within the Long Beach study area, and are not meant to apply to the entire Long Beach Peninsula or any other shoreline areas of the state.

To preserve the integrity of the dune ecosystem, the following mitigation options could be used to compensate for wetland impacts once mitigation-sequencing requirements have been satisfied within the study area:

1. **Preservation of Coastal Dune Habitats**. Wetland losses can be mitigated by preserving coastal dune habitat west of the 1968 Seashore Conservation Line at a minimum 3:1 ratio (i.e., 3 acres of habitat preserved for every 1 acre of wetland filling, excavation and/or disturbance). The preserved habitat area may include either upland or wetlands. The habitat area preserved must be protected by the recording of a perpetual conservation easement or transfer of ownership to the City or State of Washington.

2. **Off-Site Preservation of High Quality Wetlands**. Wetland losses can be mitigated by preserving high quality wetlands on the Long Beach Peninsula at a minimum 6:1 ratio (i.e., 6 acres preserved for every 1 acre of wetland filling, excavation and/or disturbance). The Washington Department of Ecology and the U.S. Army Corps of Engineers must approve areas proposed for preservation. The habitat area preserved must be protected by recording a perpetual conservation easement or transferring ownership to the City, State of Washington or an approved land conservation organization.

3. **On-Site Creation**. Impacts associated with single-family residential developments on existing platted lots (at the time of the 1997 Shoreline Master Program amendments) can be mitigated by creating new on-site wetlands at a 1.5:1 ratio (i.e., create 1.5 acres of wetland for every 1 acre of wetland filling, excavation and/or disturbance). This is only for private, noncommercial single family development by an individual(s) and not a commercial development entity.

Other mitigation proposals, other than those specifically described above, shall be reviewed on a case-by-case basis by the affected regulatory agencies. On-site mitigation shall be considered for developments other than those noted above.

Violation of these wetland mitigation regulations will result in double the proposed mitigation options if an after-the-fact ACOE permit is issued for the unauthorized work.

Sand Mining

The removal of sand from beach areas for cranberry growers and construction is authorized by the Washington Seashore Conservation Act, RCW 43.51.685. This activity is generally limited to areas between the ordinary high tide and the grass line, outside the study area. The amounts removed should be monitored, however, to support future analyses. Any regulated activity in wetlands or waterward of the mean higher high tide line must be coordinated with the Corps to determine permit requirements.

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